

---

U.S. Department of the Interior • U.S. Geological Survey

# MINERAL INDUSTRY SURVEYS

---

Mark Schaefer, Interim Director

Reston, VA 20192

---

For information, contact:

Peter H. Kuck, Commodity Specialist

Telephone: (703) 648-4965, Fax: (703) 648-7757

E-mail: [pkuck@usgs.gov](mailto:pkuck@usgs.gov)

Barbara J. McNair (Data), (703) 648-7952

MINES FaxBack: (703) 648-4999

Internet: <http://minerals.er.usgs.gov/minerals>

## NICKEL IN MAY 1997

Reported domestic nickel consumption in May, on a daily average basis, was 6% less than that of April, according to the U.S. Geological Survey. Daily usage by the stainless steel industry was down 10% from the April average of 135 metric tons (t). However, consumption of elemental nickel to make nickel-base corrosion resistant alloys increased slightly. Sales to plating companies averaged 44 t per day, slightly more than in April. Percentages reported in this paragraph may not be verifiable owing to the concealment of company proprietary data. Trade data for May will appear in a subsequent issue.

### **Billiton separates from Gencor and links up with QNI**

The recent separation of Billiton Business from Gencor Limited of South Africa will bring together several established nickel operations under a single management structure, creating the fourth largest nickel producer in the world. This amalgamation has been accomplished in less than 3 years through a series of carefully planned mergers and acquisitions. Only three competitors in the nickel business are larger—Inco Limited, RAO Norilsk Nickel, and Falconbridge Limited (Platt's Metals Week, 1997).

In September 1994, Gencor acquired Billiton BV from the Royal Dutch/Shell Group. Gencor reportedly paid Shell \$1.14 billion for the international mining, metals smelting, and trading company. At the time, Billiton had sizable alumina/aluminum operations in Australia, Brazil, and Suriname as well as a 52.31% interest in Cerro Matoso S.A., the Colombian ferronickel producer. The old Billiton operations were subsequently integrated with a number of Gencor's metals and minerals businesses in South Africa, greatly expanding the capabilities of the group.

In February 1997, Gencor increased its interest in Cerro Matoso to 98.88%, buying out the Government of Colombia's share after the Government decided to privatize the ferronickel producer. Shortly afterwards, Gencor's management took steps to spin off the bulk of the parent company's metals and minerals businesses. On July 17, Gencor's shareholders formally approved the split-up of the parent company (Billiton Plc., 1997). Gencor retained only its precious metals interests, which now form the base of the Gencor Group. The rest of its mining and processing activities were reorganized and transferred to Billiton Plc.—a new, totally independent company headquartered in the United Kingdom. Billiton Plc. was granted a business license on June 2, 1997, and was listed on the London Stock Exchange on July 28.

In late June, Gencor's management agreed to merge Billiton's nickel operations with those of QNI Limited. QNI owns and operates the Yabulu nickel refinery near Townsville, Australia. Lateritic feed for the Yabulu refinery comes largely from independent mines in Indonesia, New Caledonia, and the Philippines. The refinery is currently processing limonitic ore averaging 1.5% nickel and 0.15% cobalt. If the merger is approved by both parties, the new joint venture would have a nickel production capacity of about 60,000 t per year.

### **References Cited**

- Billiton Plc., 1997, International placing: information memorandum for shareholders of Gencor Limited: London, Billiton Plc., July 4, 197 p.  
Platt's Metals Week, 1997, Gencor, QNI form fourth-largest nickel producer: Platt's Metals Week, v. 68, no. 25, June 23, p. 1 and 4.

TABLE 1  
CONSUMPTION OF NICKEL (EXCLUSIVE OF SCRAP), BY FORM AND USE 1/

(Metric tons, nickel content)

| Period  | Cathodes,<br>pellets,<br>briquets, and<br>powder | Ferronickel | Oxide-sinter,<br>salts, and<br>other<br>forms | Total  | Total<br>year to<br>date |
|---|--|-------------|---|--------|--------------------------|
| 1996:   |  |             |   |        |                          |
| May   | 7,050  | 1,470       | 285   | 8,800  | 43,000                   |
| June  | 6,710  | 1,530       | 236   | 8,480  | 51,400                   |
| July  | 6,520  | 1,160       | 131   | 7,810  | 59,300                   |
| August  | 6,340  | 1,450       | 140   | 7,930  | 67,200                   |
| September                                     | 6,050  | 1,540       | 178   | 7,770  | 75,000                   |
| October                                       | 6,740  | 1,750       | 320   | 8,810  | 83,800                   |
| November                                      | 5,700  | 1,340       | 365   | 7,400  | 91,200                   |
| December                                      | 5,690  | 1,650       | 181   | 7,520  | 98,700                   |
| January-December                              | 78,100   | 17,600      | 2,980   | 98,700 | XX                       |
| 1997:   |  |             |   |        |                          |
| January                                       | 6,900  | 2,000       | 101   | 9,000  | 9,000                    |
| February                                      | 5,950  | 1,510       | 128   | 7,590  | 16,600                   |
| March   | 5,730  | 1,580       | 253   | 7,570  | 24,200                   |
| April   | 6,480  | 1,490       | 570   | 8,540  | 32,700                   |
| May:  |  |             |   |        |                          |
| Steel:  |  |             |   |        |                          |
| Stainless and heat resisting                  | 2,280  | 1,220       | W   | 3,500  | 18,400                   |
| Alloy (excludes stainless)                    | 267  | W           | W   | 267    | 2,830                    |
| Superalloys                                   | 749  | --          | W   | 749    | 3,740                    |
| Copper-nickel alloys                          | 169  | W           | --  | 169    | 169                      |
| Electrical, magnetic, and<br>expansion alloys | 19   | --          | --  | 19     | 19                       |
| Other nickel & nickel alloys                  | W  | W           | W   | W      | W                        |
| Cast iron                                     | W  | --          | W   | W      | W                        |
| Electroplating (sales to platers)             | 1,350  | --          | W   | 1,350  | 6,250                    |
| Chemical and chemical uses                    | W  | --          | W   | W      | W                        |
| Other uses                                    | 1,760  | 80          | 410   | 2,250  | 9,570                    |
| Total reported                                | 6,600  | 2/ 1,300    | 410   | 8,310  | 41,000                   |
| Total all companies (calc) 3/                 | XX   | XX          | XX  | 12,100 | 59,700                   |
| 1997: January-May                             | 31,700   | 7,880       | 1,460   | 41,000 | XX                       |
| 1996: January-May                             | 34,400   | 7,180       | 1,430   | 43,000 | XX                       |

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Other uses" category. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Of consumption, 5,650 metric tons were consumed as cathodes and pellets, the remainder as briquets and powder.

3/ Figures represent calculated apparent consumption; based on the revised proportion of reported primary consumption (68.69%) to apparent primary consumption for 1994.

TABLE 2  
ENDING STOCKS OF NICKEL (EXCLUSIVE OF SCRAP) HELD BY CONSUMERS,  
BY FORM AND USE 1/ 2/

(Metric tons, nickel content)

| Period  | Cathodes, pellets,<br>briquets, and<br>powder | Ferronickel | Oxide-sinter,<br>salts, and<br>other forms | Total |
|---|---|-------------|--|-------|
| 1996:   |   |             |  |       |
| May   | 4,080   | 343         | 92   | 4,510 |
| June  | 3,610   | 337         | 91   | 4,040 |
| July  | 3,450   | 517         | 70   | 4,040 |
| August  | 3,340   | 429         | 77   | 3,850 |
| September   | 2,910   | 277         | 82   | 3,270 |
| October   | 2,770   | 472         | 82   | 3,320 |
| November  | 6,170   | 625         | 64   | 6,860 |
| December  | 4,990   | 1,540       | 78   | 6,610 |
| 1997:   |   |             |  |       |
| January   | 4,370   | 659         | 55   | 5,080 |
| February  | 3,970   | 231         | 180  | 4,390 |
| March   | 4,020   | 240         | 603  | 4,870 |
| April   | 3,780   | 366         | 633  | 4,770 |
| May:  |   |             |  |       |
| Steel (stainless, heat resisting and alloy)                                 | 1,600   | 313         | (3/)                                       | 1,910 |
| Nonferrous alloys 4/  | 1,490   | (5/)        | (3/)                                       | 1,490 |
| Foundry (cast irons)  | (6/)  | --          | (3/)                                       | (3/)  |
| Chemical (catalysts, ceramics, plating<br>salts, etc.) and unspecified uses | 158   | --          | 611  | 769   |
| Total   | 3,240   | 313         | 611  | 4,170 |

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Stocks held by companies that consume nickel in more than one end use category are credited to the major category. Stocks are subject to revisions owing to inventory adjustment.

3/ Included in "Chemicals and unspecified uses" category.

4/ Includes superalloys, nickel-copper and copper-nickel alloys, permanent magnet alloys, and other nickel alloys.

5/ Included in "Chemicals and unspecified uses" category of "Oxide-sinter, salts, and other forms".

3/ Included in "Chemicals and unspecified uses" category of "Cathodes, pellets, briquets, and powder."

TABLE 3  
CONSUMPTION AND ENDING STOCKS OF PURCHASED SECONDARY NICKEL, BY USE 1/

(Metric tons, nickel content)

| Period                 | Consumption         |                        |                | Stocks              |                        |                |
|------------------------|---------------------|------------------------|----------------|---------------------|------------------------|----------------|
|                        | Ferrous<br>scrap 2/ | Nonferrous<br>scrap 3/ | Total<br>scrap | Ferrous<br>scrap 2/ | Nonferrous<br>scrap 3/ | Total<br>scrap |
| 1996:                  |                     |                        |                |                     |                        |                |
| May                    | 4,100               | 783                    | 4,880          | 3,100               | 100                    | 3,200          |
| June                   | 3,770               | 625                    | 4,400          | 3,050               | 101                    | 3,150          |
| July                   | 3,670               | 680                    | 4,350          | 3,300               | 97                     | 3,390          |
| August                 | 2,860               | 1,070                  | 3,930          | 3,350               | 98                     | 3,450          |
| September              | 3,490               | 961                    | 4,350          | 3,090               | 110                    | 3,200          |
| October                | 3,590               | 763                    | 4,360          | 3,340               | 107                    | 3,440          |
| November               | 3,250               | 775                    | 4,020          | 3,630               | 89                     | 3,720          |
| December               | 3,310               | 646                    | 3,960          | 3,520               | 88                     | 3,610          |
| 1996: January-December | 43,400              | 10,100                 | 53,500         | XX                  | XX                     | XX             |
| 1997:                  |                     |                        |                |                     |                        |                |
| January                | 4,770 r/            | 830 r/                 | 5,600 r/       | 3,130               | 116 r/                 | 3,250 r/       |
| February               | 3,830               | 791 r/                 | 4,620 r/       | 3,280               | 114 r/                 | 3,400 r/       |
| March                  | 4,190               | 996 r/                 | 5,190 r/       | 4,080               | 104 r/                 | 4,180 r/       |
| April                  | 5,200               | 766                    | 5,960 r/       | 3,840               | 113 r/                 | 3,950 r/       |
| May                    | 4,550               | 847                    | 5,390          | 4,020               | 114                    | 4,130          |
| 1997: January-May      | 22,500              | 4,230                  | 26,800         | XX                  | XX                     | XX             |
| 1996: January-May      | 43,400              | 10,200                 | 53,600         | XX                  | XX                     | XX             |

r/ Revised. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Nickel content is calculated from an average nickel content and the reported gross weight of scrap.

3/ Combined consumption and stocks of aluminum-base, copper-base, and nickel-base scrap.

TABLE 4  
U.S. IMPORTS FOR CONSUMPTION OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content 2/)

| Period and country<br>of origin | Cathodes,<br>pellets, and<br>briquets | Powder<br>and<br>flakes | Ferro-<br>nickel | Metal-<br>lurgical-<br>grade<br>oxide | Waste<br>and<br>scrap | Stainless<br>steel<br>scrap | Chemicals | Total 3/ | Total<br>year to<br>date 4/ | Wrought<br>nickel |
|---------------------------------|---------------------------------------|-------------------------|------------------|---------------------------------------|-----------------------|-----------------------------|-----------|----------|-----------------------------|-------------------|
| 1996:                           |                                       |                         |                  |                                       |                       |                             |           |          |                             |                   |
| April                           | 11,300                                | 760                     | 980              | 21                                    | 344                   | 313                         | 187       | 13,900   | 54,300                      | 52                |
| May                             | 11,000                                | 945                     | 2,020            | 91                                    | 411                   | 319                         | 219       | 15,000   | 69,400                      | 72                |
| June                            | 7,750                                 | 927                     | 1,430            | 9                                     | 343                   | 289                         | 254       | 11,000   | 80,400                      | 43                |
| July                            | 7,230                                 | 684                     | 1,470            | 18                                    | 238                   | 274                         | 216       | 10,100   | 90,500                      | 42                |
| August                          | 9,250                                 | 835                     | 1,120            | 14                                    | 235                   | 319                         | 265       | 12,000   | 103,000                     | 44                |
| September                       | 9,390                                 | 629                     | 884              | 33                                    | 416                   | 322                         | 234       | 11,900   | 114,000                     | 52                |
| October                         | 7,850                                 | 779                     | 1,050            | 60                                    | 581                   | 373                         | 311       | 11,000   | 125,000                     | 67                |
| November                        | 9,820                                 | 670                     | 1,520            | 99                                    | 328                   | 308                         | 290       | 13,000   | 138,000                     | 38                |
| December                        | 9,180                                 | 815                     | 969              | 21                                    | 351                   | 275                         | 251       | 11,900   | 150,000                     | 61                |
| 1997:                           |                                       |                         |                  |                                       |                       |                             |           |          |                             |                   |
| January                         | 7,640                                 | 954                     | 1,180            | 111                                   | 364                   | 263                         | 265       | 10,800   | 10,800                      | 57                |
| February                        | 9,310                                 | 945                     | 1,180            | 395                                   | 696                   | 392                         | 242       | 13,200   | 23,900                      | 53                |
| March                           | 14,500                                | 1,130                   | 1,070            | 277                                   | 544                   | 342                         | 198       | 18,100   | 42,000                      | 73                |
| April:                          |                                       |                         |                  |                                       |                       |                             |           |          |                             |                   |
| Australia                       | 600                                   | 120                     | --               | 16                                    | 10                    | --                          | --        | 746      | 3,940                       | --                |
| Canada                          | 4,730                                 | 687                     | --               | 331                                   | 136                   | 227                         | 23        | 6,130    | 24,000                      | 1                 |
| Colombia                        | --                                    | --                      | 116              | --                                    | --                    | --                          | --        | 116      | 492                         | --                |
| Dominican Republic              | --                                    | --                      | 616              | --                                    | 19                    | --                          | --        | 635      | 2,740                       | --                |
| Finland                         | 312                                   | 59                      | --               | --                                    | --                    | --                          | 70        | 441      | 1,630                       | --                |
| France                          | 140                                   | --                      | --               | --                                    | 82                    | --                          | --        | 222      | 961                         | 22                |
| Germany                         | 2                                     | 2                       | --               | --                                    | 85                    | --                          | 28        | 117      | 297                         | 44                |
| Japan                           | --                                    | 45                      | --               | --                                    | 18                    | 9                           | 63        | 135      | 319                         | 10                |
| New Caledonia                   | --                                    | --                      | 300              | --                                    | --                    | --                          | --        | 300      | 1,230                       | --                |
| Norway                          | 21                                    | --                      | --               | --                                    | --                    | --                          | --        | 21       | 7,170                       | --                |
| Russia                          | 2,030                                 | --                      | --               | --                                    | 8                     | --                          | --        | 2,040    | 8,150                       | --                |
| South Africa                    | --                                    | --                      | 3                | --                                    | --                    | --                          | --        | 3        | 161                         | --                |
| United Kingdom                  | 18                                    | 2                       | --               | --                                    | 157                   | --                          | 13        | 190      | 572                         | (5/)              |
| Zimbabwe                        | 36                                    | --                      | --               | --                                    | --                    | --                          | --        | 36       | 306                         | --                |
| Other                           | 41                                    | 33                      | 14               | --                                    | 57                    | 197                         | 97        | 439      | 1,620                       | 1                 |
| Total                           | 7,920                                 | 948                     | 1,050            | 347                                   | 572                   | 433                         | 294       | 11,600   | 53,600                      | 78                |
| 1997: January-April             | 39,400                                | 3,980                   | 4,480            | 1,130                                 | 2,180                 | 1,430                       | 998       | 53,600   | XX                          | 262               |
| 1996: January-April             | 41,400                                | 3,410                   | 5,530            | 119                                   | 1,370                 | 1,310                       | 1,220     | 54,400   | XX                          | 218               |

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide and hydroxide (65%).

3/ Excludes wrought nickel.

4/ May include revisions for prior months.

5/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 5  
U.S. EXPORTS OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content 2/)

| Period and country<br>of destination | Cathodes,<br>pellets, and<br>briquets | Powder<br>and<br>flakes | Ferro-<br>nickel | Metal-<br>lurgical-<br>grade<br>oxide | Waste<br>and<br>scrap | Stainless<br>steel<br>scrap | Chemicals | Total 3/ | Total<br>year to<br>date 4/ | Wrought<br>nickel |
|--------------------------------------|---------------------------------------|-------------------------|------------------|---------------------------------------|-----------------------|-----------------------------|-----------|----------|-----------------------------|-------------------|
| 1996:                                |                                       |                         |                  |                                       |                       |                             |           |          |                             |                   |
| April                                | 149                                   | 63                      | 119              | 134                                   | 965                   | 2,755                       | 389       | 4,574    | 13,566                      | 27                |
| May                                  | 82                                    | 171                     | 220              | 331                                   | 782                   | 1,519                       | 519       | 3,624    | 17,190                      | 31                |
| June                                 | 79                                    | 142                     | 73               | 616                                   | 800                   | 1,529                       | 295       | 3,532    | 20,723                      | 19                |
| July                                 | 7                                     | 50                      | 650              | 480                                   | 778                   | 2,653                       | 364       | 4,984    | 25,707                      | 30                |
| August                               | 44                                    | 97                      | 299              | 348                                   | 703                   | 2,203                       | 424       | 4,118    | 29,825                      | 64                |
| September                            | 6                                     | 80                      | 179              | 359                                   | 1,212                 | 2,232                       | 292       | 4,360    | 34,184                      | 27                |
| October                              | 20                                    | 79                      | 359              | 420                                   | 1,284                 | 2,269                       | 185       | 4,616    | 38,801                      | 63                |
| November                             | 19                                    | 88                      | 324              | 517                                   | 918                   | 1,611                       | 197       | 3,674    | 42,475                      | 59                |
| December                             | 21                                    | 75                      | 433              | 393                                   | 960                   | 1,846                       | 551       | 4,278    | 46,753                      | 21                |
| January-December                     | 586                                   | 1,060                   | 3,325            | 4,210                                 | 10,878                | 22,754                      | 3,940     | 46,753   | XX                          | 439               |
| 1997:                                |                                       |                         |                  |                                       |                       |                             |           |          |                             |                   |
| January                              | 20                                    | 72                      | 442              | 513                                   | 862                   | 1,736                       | 455       | 4,099    | 4,099                       | 56                |
| February                             | 39                                    | 114                     | 416              | 134                                   | 1,004                 | 1,694                       | 515       | 3,917    | 8,016                       | 89                |
| March                                | 26                                    | 93                      | 616              | 172                                   | 1,211                 | 1,277                       | 488       | 3,883    | 11,899                      | 61                |
| April:                               |                                       |                         |                  |                                       |                       |                             |           |          |                             |                   |
| Australia                            | --                                    | --                      | --               | --                                    | --                    | 11                          | --        | 11       | 66                          | --                |
| Belgium                              | --                                    | 8                       | --               | 1                                     | 9                     | 2                           | 7         | 27       | 133                         | 1                 |
| Canada                               | --                                    | 24                      | --               | 83                                    | 1,138                 | 257                         | 49        | 1,551    | 4,795                       | 22                |
| Germany                              | --                                    | 4                       | --               | --                                    | 46                    | --                          | 9         | 59       | 277                         | 1                 |
| India                                | --                                    | 3                       | 98               | --                                    | --                    | 8                           | (5/)      | 110      | 586                         | --                |
| Italy                                | --                                    | (5/)                    | --               | --                                    | --                    | --                          | 53        | 53       | 85                          | --                |
| Japan                                | --                                    | 3                       | 60               | --                                    | 67                    | 93                          | 184       | 407      | 1,664                       | (5/)              |
| Korea, Republic of                   | --                                    | 9                       | --               | (5/)                                  | --                    | 1,311                       | --        | 1,320    | 3,031                       | 14                |
| Mexico                               | 11                                    | 16                      | --               | --                                    | --                    | (5/)                        | 30        | 57       | 404                         | 8                 |
| Netherlands                          | --                                    | --                      | --               | --                                    | 17                    | 14                          | --        | 31       | 79                          | 1                 |
| Spain                                | --                                    | --                      | --               | --                                    | --                    | 412                         | --        | 412      | 1,471                       | --                |
| Sweden                               | --                                    | --                      | --               | --                                    | 144                   | 13                          | --        | 157      | 924                         | 1                 |
| Taiwan                               | --                                    | 1                       | 420              | --                                    | --                    | 349                         | 36        | 806      | 2,037                       | --                |
| United Kingdom                       | 5                                     | 4                       | --               | 1                                     | --                    | 91                          | 7         | 108      | 204                         | 1                 |
| Other                                | 17                                    | 12                      | 147              | 63                                    | 58                    | 174                         | 309       | 780      | 2,030                       | 109               |
| Total                                | 33                                    | 84                      | 725              | 148                                   | 1,479                 | 2,735                       | 684       | 5,888    | 17,787                      | 158               |
| 1997: January-April                  | 117                                   | 364                     | 2,199            | 968                                   | 4,556                 | 7,442                       | 2,142     | 17,787   | XX                          | 364               |
| 1996: January-April                  | 307                                   | 277                     | 790              | 745                                   | 3,442                 | 6,893                       | 1,112     | 13,566   | XX                          | 125               |

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide and hydroxide (65%).

3/ Excludes wrought nickel.

4/ May include revisions for prior months.

5/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight )

| Period and country<br>of origin | Unwrought<br>alloyed<br>ingot | Bars, rods,<br>and<br>profiles | Wire | Plates<br>and<br>sheets | Foil | Tubes<br>and<br>pipes | Other<br>alloyed<br>articles | Total | Total<br>year to<br>date 2/ |
|---------------------------------|-------------------------------|--------------------------------|------|-------------------------|------|-----------------------|------------------------------|-------|-----------------------------|
| 1996:                           |                               |                                |      |                         |      |                       |                              |       |                             |
| April                           | 561                           | 180                            | 158  | 132                     | (3/) | 95                    | 20                           | 1,150 | 3,500                       |
| May                             | 178                           | 249                            | 175  | 170                     | (3/) | 67                    | 18                           | 858   | 4,360                       |
| June                            | 221                           | 242                            | 116  | 157                     | (3/) | 71                    | 54                           | 861   | 5,220                       |
| July                            | 188                           | 117                            | 195  | 90                      | (3/) | 44                    | 107                          | 743   | 5,960                       |
| August                          | 91                            | 219                            | 97   | 187                     | (3/) | 49                    | 615                          | 1,260 | 7,220                       |
| September                       | 117                           | 70                             | 144  | 133                     | (3/) | 50                    | 59                           | 573   | 7,800                       |
| October                         | 249                           | 151                            | 120  | 90                      | (3/) | 72                    | 60                           | 741   | 8,540                       |
| November                        | 349                           | 161                            | 168  | 81                      | (3/) | 66                    | 29                           | 845   | 9,390                       |
| December                        | 151                           | 178                            | 256  | 145                     | (3/) | 48                    | 64                           | 843   | 10,200                      |
| 1997:                           |                               |                                |      |                         |      |                       |                              |       |                             |
| January                         | 208                           | 132                            | 196  | 98                      | --   | 100                   | 108                          | 841   | 841                         |
| February                        | 181                           | 202                            | 190  | 149                     | --   | 96                    | 107                          | 926   | 1,770                       |
| March                           | 265                           | 184                            | 266  | 90                      | (3/) | 117                   | 52                           | 974   | 2,740                       |
| April:                          |                               |                                |      |                         |      |                       |                              |       |                             |
| Australia                       | 174                           | --                             | --   | --                      | --   | --                    | --                           | 174   | 528                         |
| Belgium                         | 13                            | --                             | --   | --                      | --   | --                    | (3/)                         | 13    | 57                          |
| Canada                          | (3/)                          | --                             | 4    | (3/)                    | --   | 5                     | 3                            | 13    | 132                         |
| France                          | --                            | 1                              | 44   | 31                      | --   | 1                     | 1                            | 79    | 341                         |
| Germany                         | 4                             | 61                             | 70   | 103                     | --   | 25                    | 1                            | 264   | 881                         |
| Italy                           | --                            | 61                             | 3    | --                      | --   | 18                    | --                           | 82    | 120                         |
| Japan                           | 8                             | --                             | 3    | 1                       | --   | 246                   | 1                            | 259   | 340                         |
| Mexico                          | --                            | --                             | --   | --                      | --   | --                    | (3/)                         | (3/)  | 1                           |
| Netherlands                     | --                            | --                             | (3/) | --                      | --   | --                    | 17                           | 17    | 35                          |
| South Africa                    | 34                            | --                             | --   | --                      | --   | --                    | --                           | 34    | 138                         |
| Sweden                          | --                            | --                             | 154  | 3                       | --   | --                    | --                           | 157   | 553                         |
| United Kingdom                  | --                            | 61                             | (3/) | (3/)                    | --   | 3                     | 10                           | 75    | 448                         |
| Other                           | --                            | --                             | --   | 1                       | --   | --                    | 28                           | 29    | 369                         |
| Total                           | 234                           | 186                            | 283  | 139                     | --   | 298                   | 61                           | 1,200 | 3,940                       |
| 1997: January-April             | 887                           | 704                            | 935  | 477                     | (3/) | 611                   | 328                          | 3,940 | XX                          |
| 1996: January-April             | 1,240                         | 721                            | 537  | 463                     | 1    | 365                   | 181                          | 3,500 | XX                          |

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include revisions for prior months.

3/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 7  
U.S. EXPORTS OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight )

| Period and country<br>of destination | Unwrought<br>alloyed<br>ingot | Bars, rods,<br>and<br>profiles | Wire | Plates<br>and<br>sheets | Foil | Tubes<br>and<br>pipes | Other<br>alloyed<br>articles | Total 2/ | Total<br>year to<br>date 2/ |
|--------------------------------------|-------------------------------|--------------------------------|------|-------------------------|------|-----------------------|------------------------------|----------|-----------------------------|
| 1996:                                |                               |                                |      |                         |      |                       |                              |          |                             |
| April                                | 651                           | 337                            | 138  | 441                     | 43   | 149                   | 648                          | 2,410    | 8,120                       |
| May                                  | 508                           | 219                            | 149  | 792                     | 7    | 89                    | 242                          | 2,010    | 10,100                      |
| June                                 | 531                           | 270                            | 155  | 676                     | 60   | 81                    | 168                          | 1,940    | 12,100                      |
| July                                 | 335                           | 349                            | 148  | 628                     | 8    | 84                    | 451                          | 2,000    | 14,100                      |
| August                               | 540                           | 184                            | 176  | 619                     | 5    | 96                    | 183                          | 1,800    | 15,900                      |
| September                            | 274                           | 177                            | 166  | 622                     | 9    | 78                    | 176                          | 1,500    | 17,400                      |
| October                              | 602                           | 240                            | 147  | 600                     | 12   | 49                    | 394                          | 2,040    | 19,400                      |
| November                             | 485                           | 340                            | 113  | 725                     | 5    | 74                    | 276                          | 2,020    | 21,400                      |
| December                             | 478                           | 191                            | 119  | 971                     | 9    | 146                   | 129                          | 2,050    | 23,500                      |
| 1997:                                |                               |                                |      |                         |      |                       |                              |          |                             |
| January                              | 541                           | 320                            | 115  | 838                     | 10   | 91                    | 120                          | 2,030    | 2,030                       |
| February                             | 641                           | 222                            | 137  | 554                     | 20   | 136                   | 180                          | 1,890    | 3,930                       |
| March                                | 425                           | 334                            | 152  | 845                     | 23   | 99                    | 597                          | 2,480    | 6,400                       |
| April:                               |                               |                                |      |                         |      |                       |                              |          |                             |
| Australia                            | 1                             | (3/)                           | 2    | 71                      | --   | (3/)                  | --                           | 74       | 267                         |
| Belgium                              | --                            | 1                              | 5    | 3                       | --   | --                    | --                           | 8        | 59                          |
| Canada                               | 88                            | 35                             | 26   | 21                      | 2    | 29                    | 34                           | 233      | 1,390                       |
| France                               | 93                            | 44                             | 5    | 5                       | --   | 1                     | 21                           | 168      | 969                         |
| Germany                              | 20                            | 37                             | 11   | 28                      | --   | --                    | 3                            | 98       | 287                         |
| India                                | --                            | --                             | --   | --                      | --   | (3/)                  | --                           | (3/)     | 4                           |
| Ireland                              | (3/)                          | (3/)                           | 37   | 2                       | --   | --                    | (3/)                         | 39       | 94                          |
| Italy                                | 1                             | 1                              | 3    | 97                      | --   | 6                     | (3/)                         | 109      | 444                         |
| Japan                                | 59                            | 7                              | 1    | 78                      | (3/) | (3/)                  | 6                            | 151      | 818                         |
| Korea, Republic of                   | 6                             | 1                              | 6    | 102                     | 1    | 8                     | 17                           | 140      | 468                         |
| Mexico                               | 5                             | 1                              | 18   | (3/)                    | 2    | 8                     | 3                            | 38       | 175                         |
| Netherlands                          | 10                            | 18                             | (3/) | 4                       | --   | (3/)                  | (3/)                         | 33       | 141                         |
| Singapore                            | --                            | 7                              | (3/) | 3                       | --   | (3/)                  | 2                            | 12       | 88                          |
| Spain                                | --                            | --                             | 1    | --                      | --   | (3/)                  | --                           | 2        | 64                          |
| Sweden                               | --                            | (3/)                           | (3/) | 4                       | 9    | (3/)                  | 1                            | 14       | 79                          |
| Switzerland                          | 7                             | 3                              | --   | 5                       | (3/) | (3/)                  | 7                            | 21       | 62                          |
| Taiwan                               | 2                             | 1                              | (3/) | 46                      | --   | (3/)                  | 16                           | 67       | 176                         |
| United Kingdom                       | 31                            | 49                             | 23   | 173                     | (3/) | 2                     | 6                            | 285      | 1,570                       |
| Other                                | 21                            | 20                             | 86   | 7                       | --   | 36                    | 258                          | 136      | 1,170                       |
| Total                                | 344                           | 225                            | 224  | 649                     | 14   | 90                    | 374                          | 1,920    | 8,320                       |
| 1997: January-April                  | 1,950                         | 1,100                          | 629  | 2,890                   | 67   | 416                   | 1,270                        | 8,320    | XX                          |
| 1996: January-April                  | 1,960                         | 1,240                          | 388  | 2,370                   | 84   | 572                   | 1,500                        | 8,120    | XX                          |

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include revisions for prior months.

3/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 8  
NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

|                                     | Percent |      |
|-------------------------------------|---------|------|
|                                     | Wrought | Cast |
| May 1997:                           |         |      |
| Stainless and heat resisting steels | 96      | 4    |
| Alloy steels                        | 99      | 1    |
| Superalloys                         | 72      | 28   |
| Copper-nickel alloys                | 91      | 9    |
| Other nickel-base alloys            | 100     | (1/) |

1/ Less than 1/2 unit.

TABLE 9  
NICKEL PRICES

| Date                      | Cathode<br>NY Dealer<br>\$/lb. | LME<br>Cash<br>\$/t | LME<br>Cash<br>\$/lb. | 18/8 Stainless<br>steel scrap<br>Pittsburgh<br>\$/long ton(gw) |
|---------------------------|--------------------------------|---------------------|-----------------------|--|
| 1997:                     |                                |                     |                       |  |
| Average for the month of: |                                |                     |                       |  |
| April                     | 3.399                          | 7,315.523           | 3.318                 | 894  |
| May                       | 3.482                          | 7,482.850           | 3.394                 | 855  |
| June                      | 3.319                          | 7,062.476           | 3.203                 | 845  |
| For week ending:          |                                |                     |                       |  |
| April 4                   | 3.55-3.58                      | 7,593.875           | 3.445                 | 890-910  |
| April 11                  | 3.39-3.54                      | 7,237.400           | 3.283                 | 880-905  |
| April 18                  | 3.30-3.42                      | 7,203.200           | 3.267                 | 880-905  |
| April 25                  | 3.39-3.48                      | 7,305.600           | 3.314                 | 880-905  |
| May 2                     | 3.39-3.43                      | 7,261.500           | 3.294                 | 880-905  |
| May 9                     | 3.42-3.56                      | 7,504.750           | 3.404                 | 840-850  |
| May 16                    | 3.59-3.65                      | 7,677.100           | 3.482                 | 840-850  |
| May 23                    | 3.54-3.67                      | 7,571.300           | 3.434                 | 840-850  |
| May 30                    | 3.40-3.51                      | 7,230.875           | 3.280                 | 840-850  |
| Jun 6                     | 3.27-3.37                      | 7,021.200           | 3.185                 | 840-850  |
| Jun 13                    | 3.39-3.42                      | 7,171.400           | 3.253                 | 840-850  |
| Jun 20                    | 3.33-3.39                      | 7,093.300           | 3.217                 | 840-850  |
| Jun 27                    | 3.29-3.35                      | 7,019.000           | 3.184                 | 840-850  |
| Jul 4                     | 3.22-3.29                      | 6,808.700           | 3.088                 | 800-820  |
| Jul 11                    | 3.19-3.23                      | 6,760.800           | 3.067                 | 800-820  |

Sources: Platt's Metals Week and American Metal Market.